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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,702	04/13/2001	Jong-Won Seok	11349-P66578US0	4947

7590 10/21/2004	EXAMINER
JACOBSON, PRICE, HOLMAN & STERN	PARTHASARATHY, PRAMILA

ART UNIT	PAPER NUMBER
2136	

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DATE MAILED: 10/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *04/13/2001*.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This action is in response to the application filed on 04/13/2001. Claims 1 – 13

were received for consideration. No preliminary amendments to the claims were filed

on. Claims 1 – 13 are currently being considered.

Information Disclosure Statement

2.   An initialed and dated copy of Applicant's IDS form 1449 is attached to the Office

action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public
use or on sale in this country, more than one year prior to the date of application for patent in the United
States.

3.   Claims 1- 13 are rejected under 35 U.S.C. 102(b) as being anticipated by

Moskowitz et al. (U.S. Patent Number 5,889,868).

Regarding Claim 1, Moskowitz teaches and describes an apparatus for imbedding watermark by using a linear prediction analysis (Summary and Column 9 line 53 – Column 18 line 4), comprising:

a linear prediction analyzing unit for receiving an original signal and detecting a prediction coefficient predetermined through the linear prediction analysis (Column 9 line 53 – Column 10 line 56);

a delay unit for receiving the original signal and delaying it by a predetermined time (Column 9 line 53 – Column 10 line 56);

a linear prediction analysis filtering unit for filtering the signal delayed in the delay unit by using the prediction coefficient detected in the linear prediction analyzing unit (Column 9 line 53 – Column 10 line 56);

a frequency area converting unit for converting the signal outputted from the linear prediction analysis filtering unit into a frequency area signal (Column 6 line 46 – Column 7 line 47);

a psychological acoustic modeling unit for receiving the original signal and gaining a masking threshold by employing a psychological acoustic model (Column 16 lines 6 – 48);

a time-varying adaptation filtering unit for performing a control so that the signal outputted from the frequency area converting unit may have a magnitude approximate a magnitude the masking threshold gained in the psychological acoustic modeling unit (Column 16 line 28 – Column 17 line 8);

a time area converting unit for changing the signal outputted from the time-varying adaptation filtering unit to a time area signal (Column 9 lines 31 – 52 and Column 16 line 28 – Column 17 line 8);

an error correction coding unit for receiving copyright information and providing an error correction function (Column 14 line 24 – Column 15 line 29);

a code generating unit for providing a code to the time area signal outputted from the time area converting unit response to a signal outputted from the error correction coding unit (Column 7 lines 29 – 47); and

computing unit for adding and deducting the signal having the code provided from the code generating unit to/from the original signal response to a corresponding code (Column 5 lines 37 – 55; Column 8 lines 14 – 31 and Column 10 lines 30 – 62).

Regarding Claim 6, Maskowitz teaches and describes an apparatus for detecting linear prediction analysis (Summary and Column 6 line 9 – Column 17 line 31), comprising:

linear prediction analyzing unit for receiving a signal having an imbedding of a watermark and outputting a prediction coefficient predetermined through the linear prediction analysis (Column 2 lines 47 – 57; and Column 11 line 58 – Column 12 line 18);

linear prediction analysis filtering unit filtering the signal having the imbedding the watermark by using the prediction coefficient extracted from the linear prediction analyzing unit (Column 5 lines 6 – 15 and Column 9 line 53 – Column 10 line 56);

an autocorrelation acquiring unit for receiving filtered value outputted from the

linear prediction analysis filtering unit and gaining an autocorrelation (Column 13 line 40

– Column 14 line 10 and Column 17 lines 9 – 31);

a code detecting unit for detecting a code of a correlation outputted from the

autocorrelation acquiring unit (Column 13 line 40 – Column 15 line 29); and

an error correction decoding unit for performing an error correction decoding

according code detection result watermark by using value outputted from the code

detecting unit and extracting a watermark signal (Column 3 line 63 – Column 4 line 47;

Column 15 line 8 – Column 16 line 13 and Column 17 line 32 – Column 18 line 4).

Regarding Claim 8, Moskowitz teaches and describes a method imbedding a

watermark a watermark imbedding apparatus using linear prediction analysis, said

method comprising the steps of:

receiving an original signal, detecting a prediction coefficient predetermined

through the linear prediction analysis, delaying by predetermined time, and gaining a

masking threshold by employing a psychological acoustic model (Column 6 line 46 –

Column 7 line 47 and Column 9 line 53 – Column 10 line 56);

filtering the delayed audio signal by using the detected prediction coefficient

(Column 9 line 53 – Column 10 line 56);

converting a value filtered in said second step into a frequency area

signal (Column 6 line 46 – Column 7 line 47);

AR(Auto-regressive)-filtering the frequency area signal by using the masking threshold (Column 16 lines 6 – 48);

converting the signal filtered in said fourth step into a time area signal (Column 9 lines 31 – 52 and Column 16 line 28 – Column 17 line 8);

generating an error correction code having copyright information and an error correction function, code to the time area signal according to and providing the error correction code (Column 7 lines 29 – 47 and Column 14 line 24 – Column 15 line 29);

adding and deducting the time area signal to/from the original signal according to the provided code, and producing a signal having an imbedding of the watermark (Column 5 lines 37 – 55; Column 8 lines 14 – 31 and Column 10 lines 30 – 62).

Regarding Claim 10, Maskowitz teaches and describes a method of detecting watermark detecting apparatus using a linear prediction analysis, said method comprising the steps of:

receiving a signal having an imbedding of a watermark, and detecting a prediction coefficient predetermined through the linear prediction analysis (Column 9 line 53 – Column 10 line 56);

filtering the signal having the imbedding of watermark by using the detected prediction coefficient (Column 9 line 53 – Column 10 line 56);

measuring an autocorrelation of the filtered signal (Column 13 line 40 – Column 14 line 10 and Column 17 lines 9 – 31);

detecting a code for the measured correlation (Column 13 line 40 – Column 15 line 29); and,

performing an error correction decoding by using the code detection result, and extracting a watermark signal (Column 3 line 63 – Column 4 line 47 and Column 15 line 8 – Column 16 line 13).

Regarding Claim 12, Maskowitz teaches and describes a record medium capable of being read through a computer having writing of a program, watermark imbedding apparatus having a processor based on a large capacitance, said record medium characterized that said program contains:

a first function of receiving an original signal, detecting a prediction coefficient predetermined through the linear prediction analysis, delaying by predetermined time, and gaining a masking threshold by employing a psychological acoustic model (Column 6 line 46 – Column 7 line 47 and Column 9 line 53 – Column 10 line 56);

a second function of filtering the delayed audio signal by using the detected prediction coefficient (Column 9 line 53 – Column 10 line 56);

a third function of converting a value filtered in said second function into a frequency area signal (Column 6 line 46 – Column 7 line 47);

a fourth function of AR(Auto-regressive)-filtering the frequency area signal by using the masking threshold (Column 16 lines 6 – 48);

a fifth function of converting the signal filtered in said fourth function into a time area signal (Column 9 lines 31 – 52 and Column 16 line 28 – Column 17 line 8);

a sixth function of generating an error correction code having copyright information and an error correction function, code to the time area signal according to and providing the error correction code (Column 7 lines 29 – 47 and Column 14 line 24 – Column 15 line 29);

a seventh function of adding and deducting the time area signal to/from the original signal according to the provided code, and producing a signal having an imbedding of the watermark (Column 5 lines 37 – 55; Column 8 lines 14 – 31 and Column 10 lines 30 – 62).

Regarding Claim 13, Maskowitz teaches and describes a record medium capable of being read through a computer having writing of a program, watermark imbedding apparatus having a processor based on a large capacitance, said record medium characterized that said program contains:

a first function of receiving a signal having an imbedding of a watermark, and detecting a prediction coefficient predetermined through the linear prediction analysis (Column 2 lines 47 – 57; Column 9 line 53 – Column 10 line 56 and Column 11 line 58 – Column 12 line 18);

a second function of filtering the signal having the imbedding the watermark by using the prediction coefficient extracted from the linear prediction analyzing unit (Column 5 lines 6 – 15 and Column 9 line 53 – Column 10 line 56);

a third function of measuring an autocorrelation of the filtered signal (Column 13 line 40 – Column 14 line 10 and Column 17 lines 9 – 31);

a fourth function of detecting a code for the measured correlation (Column 13 line 40 – Column 15 line 29); and

a fifth function of performing an error correction decoding by using the code detection result, and extracting a watermark signal (Column 3 line 63 – Column 4 line 47 and Column 15 line 8 – Column 16 line 13).

Claims 2, 7, 9 and 11 are rejected as applied above in rejecting claims 1, 6, 8 and 10. Furthermore, Maskowitz teaches and describes an apparatus for imbedding watermark by using a linear prediction analysis (Summary and Column 9 line 53 – Column 18 line 4), wherein said linear prediction analyzing unit extracts the prediction coefficient capable predicting audio peculiar spectrum through the linear prediction analysis (Column 10 lines 30 – 56; Column 15 line 8 – Column 16 line 13 and Column 17 line 32 – Column 18 line 4).

Claim 3 is rejected as applied above in rejecting claim 1. Furthermore, Maskowitz teaches and describes an apparatus for imbedding watermark by using a linear prediction analysis (Summary and Column 9 line 53 – Column 18 line 4), wherein said psychological acoustic modeling unit receives the original audio signal and obtains the masking threshold as a threshold capable of sensing audio original sound in a frequency area by employing a psychological acoustic model (Column 16 lines 6 – 48).

Claim 4 is rejected as applied above in rejecting claim 1. Furthermore, Maskowitz teaches and describes an apparatus for imbedding watermark by using a linear prediction analysis (Summary and Column 9 line 53 – Column 18 line 4), wherein said delay unit receives the original signal and delays it by predetermined constant time, and after that, sends the delayed signal to the linear prediction analysis filtering unit, said delayed constant time becoming a key value in a watermark detection (Column 8 line 53 – Column 10 line 56).

Claim 5 is rejected as applied above in rejecting claim 4. Furthermore, Maskowitz teaches and describes an apparatus for imbedding watermark by using a linear prediction analysis (Summary and Column 9 line 53 – Column 18 line 4), wherein said time-varying adaptation filtering unit makes an AR(auto-regressive) filter on the basis of the masking threshold obtained in the psychological acoustic modeling unit, and then, performs control so that signal outputted from frequency area converting unit may be passed through the AR filter and may thereby have magnitude approximate to the masking threshold (Column 9 lines 31 – 52 and Column 16 line 6 – Column 17 line 8).

Conclusion

4.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hayashi et al. (Patent Number: 6,535,616) Information processing apparatus, Method and Memory medium therefor

Petrovic (Patent Number: 6,430,301) Formation and analysis of signals with common and transaction watermarks

5.   Any response to this action should be mailed to:

Commissioner of Patents and Trademarks, Washington, D.C. 20231 **or faxed to:** (703) 872-9306 for all formal communications.

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Fourth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pramila Parthasarathy whose telephone number is 703-305-8912. The examiner can normally be reached on 8:00a.m. To 5:00p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 703-305-9648. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Pramila Parthasarathy
October 14, 2004.

AYAZ SHEIKH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100